

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A switching voltage regulator adapted for providing a regulated voltage at an output terminal, comprising:

A a MOS transistor having a non-drivable terminal coupled with said output terminal; ~~terminal~~; and

a control circuit receiving a signal that is representative of the current signal flowing in said MOS transistor, said control circuit having a compensation device (9) adapted for cancelling the thermal variation of said signal that is representative of the current signal flowing in said MOS transistor, wherein said compensation device comprises an element having a negative temperature coefficient.

2. (Canceled)

3. (Currently Amended) The regulator according to claim 2-1 wherein said compensation device comprises a first and a second resistors connected in series, said negative temperature coefficient element being arranged in parallel to said first or second resistor.

4. (Original) The regulator according to claim 3 wherein said negative temperature coefficient element is a NTC resistor.

5. (Original) The regulator according to claim 3 wherein said negative temperature coefficient element is a diode.

6. (Currently Amended) The regulator according to claim 1 wherein said MOS transistor is a MOS power transistor having a non-drivable terminal coupled with an input voltage, and ~~in that~~ said control circuit comprises a driving device of said MOS power transistor which is coupled with its gate terminal, a first device which is adapted for detecting the current flowing through said MOS power transistor and which is able to provide at an output terminal said signal that is representative of the current signal flowing in said MOS transistor, a second device which is coupled with said first device and which is able to compare said signal in output from said first device with a reference signal and which is able to provide a correction signal to the driving device, said compensation device being coupled with the output terminal of the first device and with the output terminal of said voltage regulator.

7. (Original) The regulator according to claim 6 wherein said second device is an error amplifier having the input inverting terminal connected with the output terminal of the first device and with the compensation device.

8. (Original) The regulator according to claim 7 wherein said first device comprises a transconductance amplifier.

9. (Currently Amended) A power supply modular system comprising:
two single switching regulators arranged in parallel to each other, each of said regulators being adapted for providing a regulated voltage at an output terminal, each of said regulators comprising at least one MOS transistor having a non-drivable terminal coupled with said output terminal; and

a control circuit receiving a signal that is representative of the current signal flowing in said MOS transistor, said control circuit having a compensation device (9) adapted for cancelling the thermal variation of said signal that is representative of the current signal flowing in said MOS transistor, wherein said compensation device comprises an element having a negative temperature coefficient.

10. (Canceled)

11. (Currently Amended) The system according to claim ~~10~~9 wherein said compensation device comprises a first and a second resistors connected in series, said negative temperature coefficient element being arranged in parallel to said first or second resistor.

12. (Currently Amended) The system according to claim ~~10~~9 wherein said negative temperature coefficient element is a NTC resistor.

13. (Currently Amended) The system according to claim ~~11~~9 wherein said negative temperature coefficient element is a diode.

14. (Currently Amended) The system according to claim 9 wherein said two switching regulators have a common input voltage, each one of said regulators comprising supply means coupled with said MOS transistor connected in turn with an output terminal of said modular system, and ~~in that~~ said control circuit is coupled with the MOS transistor, with said supply means and with a bus which is common to all said at the least two switching regulators and which is adapted for bringing the information of the average current brought totally by said system, said control circuit comprising a first device which is adapted for detecting said current flowing between the drain and source terminals of said MOS transistor and which is able to provide at an output terminal said signal that is representative of the said current, said compensation device being coupled with said first device in order to provide in output a compensated signal, said control circuit comprising first means able to provide a signal representative of the compensated signal to said bus and second means able to provide a correction signal to said supply means in order the current signal of each regulator to make equal to said average current.

15. (Original) The system according to claim 14 wherein said first means comprises a buffer having in input said compensated signal and said second means comprises an

error amplifier having said compensated signal at the inverting terminal and a signal representative of said average current coming from said bus at the non-inverting terminal.

16. (New) A switching voltage regulator for providing a regulated voltage at an output terminal, comprising:

a MOS power transistor having a first conduction terminal coupled with said output terminal and a second conduction terminal coupled with an input voltage; and

a control circuit receiving a signal that is representative of a current flowing in said MOS transistor, said control circuit including:

a compensation device structured to cancel a thermal variation of said signal that is representative of the current flowing in said MOS transistor;

a driving device coupled to a gate terminal of said MOS power transistor;

a first device structured to detect the current flowing through said MOS power transistor and provide at an output terminal said signal that is representative of the current flowing in said MOS transistor; and

a second device coupled with said first device and structured to compare said signal from said first device with a reference signal and provide a correction signal to the driving device, said compensation device being coupled with the output terminal of the first device and with the output terminal of said voltage regulator, wherein said second device is an error amplifier having an input inverting terminal connected with the output terminal of the first device and with the compensation device, wherein said first device includes a transconductance amplifier.

17. (New) The regulator according to claim 16 wherein said compensation device comprises first and second resistors connected in series, said negative temperature coefficient element being arranged in parallel to said first or second resistor.

18. (New) The regulator according to claim 16 wherein said negative temperature coefficient element is an NTC resistor.

19. (New) The regulator according to claim 16 wherein said negative temperature coefficient element is a diode.

20. (New) A power supply modular system, comprising:

two switching regulators arranged in parallel to each other, each of said regulators being structured to provide a regulated voltage at an output terminal, each of said regulators including a MOS transistor having a conduction terminal coupled with said output terminal, wherein said two switching regulators have a common input voltage, each of said regulators including supply means coupled with said MOS transistor connected in turn with an output terminal of said modular system;

a bus common to the two switching regulators and structured to bring information of an average current brought totally by said modular system; and

a control circuit receiving a signal that is representative of a current flowing in said MOS transistor, said control circuit being coupled with the MOS transistor, with said supply means, and with the bus, said control circuit including:

a compensation device structured to cancel a thermal variation of said signal that is representative of the current flowing in said MOS transistor;

a first device structured to detect said current flowing in said MOS transistor and provide at an output terminal said signal that is representative of said current, said compensation device being coupled with said first device in order to provide in output a compensated signal;

first means for providing a signal representative of the compensated signal to said bus; and

second means for providing a correction signal to said supply means in order to make the current of each regulator equal to said average current.

21. (New) The system according to claim 20 wherein said first means comprises a buffer having in input said compensated signal and said second means comprises an

error amplifier having said compensated signal at an inverting terminal and a signal representative of said average current coming from said bus at a non-inverting terminal.